

**Draft Summary of the Environmental Work Group Meeting
Oroville Facilities Relicensing (FERC Project No. 2100)
May 21, 2003**

The Department of Water Resources (DWR) hosted a meeting for the Environmental Work Group (EWG) on May 21, 2003 in Oroville.

A summary of the discussion, decisions made, and action items is provided below. This summary is not intended to be a transcript, analysis of the meeting, or to indicate agreement or disagreement with any of the items summarized, except where expressly stated. The intent is to present a summary for interested parties who could not attend the meeting. The following are attachments to this summary:

Attachment 1	Meeting Agenda
Attachment 2	Meeting Attendees
Attachment 3	Resource Action Matrix (first 25 resource actions) revised by Fisheries Task Force
Attachment 4	Revised Resource Action Matrix
Attachment 5	NOAA Fisheries Fish Passage Presentation
Attachment 6	Proposed Changes to SP-T2 and SP-T7 (study area)
Attachment 7	Proposed Changes to SP-F10: Evaluation of Project Effects on Salmonids and their Habitat in the Feather River below the Fish Barrier Dam, revised May 20, 2003
Attachment 8	Proposed Changes to SP-F3.2: Evaluation of Project Effects on Non-Salmonid Fish in the Feather River Downstream of the Thermalito Diversion Dam, revised May, 20, 2003
Attachment 9	Interim Report, SP-W5, Task 1, Phase 1 revised May 14, 2003
Attachment 10	Draft Report, SP-F8: Transfer of Energy and Nutrients by Anadromous Fish Migrations
Attachment 11	SP-F8 Presentation
Attachment 12	Interim Report, SP-F10, Task 2B: Steelhead Spawning Methods

I. Introduction

Attendees were welcomed to the EWG meeting. Attendees introduced themselves and their affiliations. The desired outcomes of the meeting were discussed as listed on the meeting agenda. The meeting agenda and list of meeting attendees are appended to this summary as Attachments 1 and 2, respectively.

II. Modeling Update

Curtis Creel, Operations Resource Area Manager and Modeling Coordinator with DWR reported that his staff is planning a modeling workshop in place of the June 24th Plenary Group meeting at the Kelly Ridge Meeting Room. The purpose of the workshop is to introduce the actual operations modeling tools and look at benchmark scenario model runs. Curtis indicated DWR would host another more intensive workshop in late summer to evaluate model run data with work groups and plan for additional scenario runs that are necessary to aid in decision making. Curtis reported that each scenario costs approximately \$100,000 and takes about a month or so to complete the iterations although with time and experience, that amount should decrease some. The cost includes considerable human analysis of modeling results.

He described the initial list of scenarios being developed to evaluate how sensitive the system is to perturbations to variables. For example, scenarios would be run without pumpback or foregoing peaking generation or with increased flow in the low flow channel. He explained that these types

of bookend studies tend to be extreme cases and not really feasible alternatives but they do provide useful information on actions controlling the system.

III. PM&E Discussion

Fisheries Task Force Update

Dave Olson with the consulting team updated the EWG on the Fisheries Task Force meeting held May 7, 2003. The task force discussed the first 25 potential resource actions contained within the matrix and integrated additional information from their discussion into the matrix in redline/strikeout. A revised version of the matrix was distributed to the EWG (Attachment 3) and Dave noted that additional potential resource actions that were discussed at the task force meeting have not yet been incorporated into the matrix. Chuck Hanson consultant to the State Water Contractors suggested that a column be added to identify nexus with the project. He noted that we might want to identify the off-site mitigation opportunities and other actions that may be nice to do but may not be the licensee's responsibility. Steve Edmondson representing NOAA Fisheries suggested that nexus is important but further down the road in settlement whether or not an action is project related becomes less important. Chuck clarified that inclusion of a proposed resource action on the list does not mean that we know of any existing adverse effects related to that issue. Dave Olson noted that the Fisheries Task Force is scheduled to meet again in June and will incorporate any suggestions made at this meeting during the matrix review.

Terrestrial Task Force Update

Woody Elliot representing State Department of Parks and Recreation (DPR) reported that the Terrestrial Task Force met and discussed each of the terrestrial-related resource actions. Revisions made during their meeting are incorporated in a revised version of the complete draft Resource Area Matrix distributed to the EWG (Attachment 4). They plan to handle any additional revisions if needed via conference calls.

Resource Action Prioritization

Wayne Dyok with the consulting team explained that Terry Mills would like the EWG to identify their top 10-15 potential resource actions so that DWR and the consulting team can 'flesh them out' with more detail for discussion at the next EWG meeting. The additional detail could follow the example that the Preliminary Draft Environmental Assessment (PDEA) group prepared for information needs related to the LWD placement resource action. Eric Theiss representing NOAA Fisheries confirmed that the top 10-15 did not necessarily need to come from the existing list of potential resource actions but could be new.

Wayne reviewed the structural changes that had been made to the Resource Area Matrix. He pointed out that 'Project Issue Addressed' was changed to 'Resource Category and columns had been added for 'temperature-related', 'water-level related', and 'technical content/resource expert'. He explained that the resource expert is meant to identify someone to whom collaborative participants might ask questions or submit information on a particular subject. Use of this column should be limited to experts that also know something about this process and the system here so that experts with no knowledge of this project will not be included.

Chuck Hansen reiterated the need for a project nexus column with potential categories such as 1) directly related to project facilities; 2) general actions within the project area but not affected by operations/facility; and 3) actions that might be other's responsibility. He added that this could then become a template for negotiators to use during settlement discussions. Steve Edmondson suggested a category for actions requiring third-party action.

Mike Melanson representing Metropolitan Water District (MWD) pointed out that the column for P, M, or E was deleted. The EWG agreed that this was not an important consideration right now but

will become more significant later. Sharon Stohrer representing the State Water Resources Control Board (SWRCB) suggested the resource actions could be broken into categories based on timing such as immediate, within 10 years, 10-20 years, etc.

The EWG reviewed both versions of the Resource Area Matrix together with the following comments specific to numbered resource actions:

- EWG-6: Could be consolidated with EWG-19
- EWG-19: Too specific, add '(e.g. near Verona)'
- EWG-7: Not really a PM&E but part of SP-F3.2
- EWG-8: Part of SP-F3.2 Task 3A
- EWG-3: Not required – move to back of document with additional note explaining why.
- EWG-46 and 49: Same as EWG-39, 46, 43, and 49 except for location. PM&E should be management plan component for evaluating fish disease. 39, 43, 46, and 49 will be moved to back with comment that fish disease impacts of proposed actions will be a part of the evaluation process and will not be a PM&E. The new PM&E added will be a fisheries management plan for fish disease impacts of ongoing and proposed activities.
- EWG-69: Nesting should be changed to foraging. Move the language of 69 to 57 and change 69 to 57B.
- EWG-71: Not appropriate to do weed control with flow regime. Refer to EWG-66 and 61. Other methods would be employed.
- EWG-72: Not much control of this in the high flow channel so should not include area below Oroville Wildlife Area (OWA)
- EWG-88, 89,90, 91, and 92 These should be moved to fisheries section.

Steve Rothert representing American Rivers added a resource action that includes levee setbacks in the low flow channel to provide additional floodplain and riparian habitat in the OWA. Mike Mainz representing California Department of Fish and Game (DFG) supported increasing the width of the floodplain to improve and increase wetland and wildlife riparian habitat. He noted that the non-flood control levees in the OWA are already notched but could be modified to improve fish habitat.

The EWG identified their top priority resource actions as follows:

Rich DeHaven representing US Fish and Wildlife Service (FWS) stated his desire to see a programmatic approach with long-term solutions to chronic problems for example, a resource action that would define a long-term program to monitor, maintain, and improve adult salmonid spawning habitat. He suggested that such a program could include actions such as gravel ripping and gravel introduction and include immediate actions as well as long-term activities and monitoring for success. He identified another priority as providing a long-term program to monitor, maintain, and improve juvenile salmonid rearing habitat and noted that the low flow channel is his priority location for both programs. He identified EWG-16A and EWG-16B as resource actions of interest.

Woody Elliott representing DPR identified EWG-54 and noted interest in vernal pool management in the Forebay area as well as the entire Thermalito complex. DWR noted that a vernal pool management plan is awaiting FWS approval before it can be implemented. Woody also identified EWG-73 and noted that DPR purple loosestrife control efforts are in progress but the budget is in jeopardy.

Chuck Hanson said he made his selections to exercise the tools we have developed and see how we will approach each problem. He selected EWG-15 because it requires using PHABSIM and will test how we will do that and EWG-35 because it integrates the temperature modeling component,

what we know about predator-prey relationships and juvenile rearing habitat. Chuck added EWG-4B related to attraction flows due to the need to coordinate with Yuba River flows and integrate model output. He is interested in how the EWG will decide how such an action should look, how we will measure biological success and what it will cost.

Mike Melanson identified EWG-16A and B related to side channel habitat.

Sharon Stohrer suggested EWG-87 as top priority with the potential to assess modifications to allow separation of both cold and warm water and species. She also identified EWG-51 and EWG-83 as priorities.

Andy Atkinson representing DFG suggested EWG-59 and 74 regarding the protection of terrestrial species from recreation impacts and the control of non-native plant species.

Mike Mainz added his biggest interest is in salmonid spawning habitat addressed in EWG-19A, 21, 22, and 23. He suggested EWG-36, 37 and 87 for temperature control downstream of Thermalito and EWG1, 2A and 2B that deal with separation of fall and spring run salmon.

Eric Theiss suggested that while there are many positive actions on the table, he doesn't believe we would get anything accomplished to benefit the species with what is currently proposed. He likes the proposed side-channel development and the potential for cooler water in the river from the Thermalito outlet but feels that upstream habitat needs to be utilized so the fish aren't forced to fit in the available downstream habitat. He indicated an interest in moving fish up to Lake Almanor on the Feather River to relieve downstream water users of the need to provide cold water. He is also interested in the creation of additional fish habitat in tributaries to the lower Feather River such as Glen Creek, secondary channel construction, and coordinated seasonal flow increases. He clarified that seasonal flow increases would be pulse flows aimed at cueing fish to move downstream. His top priority is fish passage, followed by water temperature control at Thermalito Afterbay and secondary channel construction.

Steve Rothert reiterated his priority for levee setback and increased riparian habitat in the OWA and added EWG-87 and 61 related to riparian habitat improvement along the Feather River.

Ben Swann representing the California Entities competing for the Poe Project FERC license 2107 identified their interest as fish passage and resident fish in the area of Big Bend Dam represented in EWG-97 and 10B.

Anna Kastner with DFG suggested EWG1 and 2A are her priorities. She also noted that passage raises hatchery disease concerns. Bill Cox with DFG agreed that passage and nutrient enhancement both have disease implications. He noted the hatchery screens for viruses but not for bacteria.

Wayne indicated the consulting team and DWR would do their best to flesh out at least everyone's first choice and if possible all of the second choices too.

NOAA Passage PM&E

Eric Theiss presented a proposed resource action to move fish past Oroville and eventually to the upper watershed of the North Fork Feather River (see attachment 5). He suggested that if fish can be moved to federal lands where they are already managed for, it would relieve the ESA agencies of the burden of managing downstream areas for these species. He presented a map showing potential restoration habitat along Chipps Creek, Yellow Creek, East Branch and Roberts Creek. He estimates 136 miles of habitat above Oroville Dam could be accessed. Eric described the historic use of the habitat. Mike Mainz noted that the river around Big Bend Dam was dewatered in

the 1850s for large-scale gold mining operations when a tunnel was built that blocked upstream passage. He added that Big Bend Dam was not laddered until the 1930s and there is no documentation that it worked well.

Eric noted that Oroville is too high for a ladder but a trap and truck system could be successful. He cited successful trap and truck operations to pass shad on the Susquehanna River as evidence that species sensitive to handling can be moved by this method. His proposal involves placing a small diversion dam and collection device on an upper arm of Lake Oroville on the West Branch and screening the Miocene Dam. Eric See with DWR suggested they consider using Miocene as the collection point since the dam already exists. Eric Theiss provided photos of a gulper fish collection system on Baker Lake in Washington that includes a ¼-inch Kevlar net extending from the surface to the bottom of the lake and a barge to move fish past the dam. He described a bioacoustics fish fence to be installed immediately below Big Bend Dam on the North Fork that would employ a bubble or acoustic curtain to repel fish and direct them for collection. He said NOAA would ask the Poe Project licensee to install a high gradient fish ladder on Big Bend Dam to allow passage of salmonids but not centrarchids. Eric See clarified that the proposal intends to truck adult salmonids into Lake Oroville but not truck them further upstream so a collection device would be needed on every tributary to Lake Oroville and a ladder at every dam above Oroville on the North Fork. Eric Theiss confirmed that intention and added NOAA's intention to request that the Poe Project licensee look at a high-speed screen such as a modular incline plane or Eiker screen at Poe Dam. Steve Edmondson stated that NOAA would be petitioning FERC to re-open the Rock Creek-Cresta license and Eric Theiss added that with the licenses for 2107 and 2100 open, we could bring fish up to Rock Creek-Cresta. Eventually, the goal is to move fish at least to Lake Almanor and potentially above however Eric noted that NOAA is not looking at moving fish above Lake Almanor at this time.

Eric Theiss clarified that the hatchery would be the collection point for spring run Chinook salmon and Anna Kastner noted that if this proposal were considered, an alternative water supply to the hatchery would be necessary. Eric See noted that the amount of water used by the hatchery is so great that no alternative source would be feasible. Mike Mainz noted that this proposal conflicts with other NOAA activities such as taking more cold water out of the West Branch and putting it into Butte Creek. He also pointed out that Eiker screens are not approved by DFG and noted that the Poe diversion is approximately 3,700 cfs, larger than the 2,000-cfs diversion screened by Glenn-Colusa Irrigation District at a cost of approximately \$75 million. He suggested that the concept of restoring fish to historic habitat is positive but not likely to be feasible or possible here. Eric Theiss responded that the feasibility of these additional structures needs to be analyzed because the behavioral devices might prove to be so effective that screens are not necessary and suggested that the cost to the Poe Project licensee would be about the same as the gross annual revenue from the project.

Bill Cox suggested that the holding system would need to collect fish from the colder water within the water column and hold them only a short time and perhaps employ a chiller on the transport barges to decrease mortality during passage. Eric See asked if an alternative to screening upstream dams was to collect the fish at these dams and truck them downstream. Eric Theiss responded that was possible but NOAA did not want to make that choice at this time.

Eric See asked how NOAA measures recovery success and asked for clarification on the number of fish required to get to recovery. Eric Theiss replied that Dianne Windham with NOAA is trying to answer those questions and hopefully will have numbers for the Feather River in the next two to three years. Eric Theiss clarified that this proposed resource action is phased and begins with a feasibility study due in September with a test of the actual device in the spring of 2003. Steve Edmondson confirmed that the fish passage proposal is being submitted in support of the PM&E development process within the collaborative. Mike Mainz noted that as a proposed resource

action within this collaborative, the action should take place after a decision is made on a PM&E or resource action package. Steve Rothert noted that other proposed resource actions have additional information gathering associated with them and suggested this could be considered one of those.

The EWG discussed SP-F15 that extends to the first upstream migration barrier and Mike Melanson reminded the EWG that the scope ended at the first upstream barrier because DWR is only responsible for the area upstream to that point. Eric Theiss stated NOAA's interest in an evaluation of the entire watershed and added they intend to ask the Upper North Fork Feather River Project licensee to expand the scope of their evaluation. He indicated that DWR should consider blockage of downstream passage for juveniles and look at the habitat upstream to Almanor. He suggested DWR survey the area via helicopter to evaluate habitat similar to the efforts underway on the Yuba River. He stated NOAA's position that DWR has some responsibility for everything upstream of the Oroville Dam.

Nan Nalder representing the State Water Contractors asked for a copy of the NOAA presentation and noted that the watershed approach NOAA is suggesting would require FERC to order all of the licensees to participate and would involve a collaborative effort among those licensees. Eric Theiss responded that since several licenses are currently in some stage of relicensing, the timing is right to hold these discussions. Wayne Dyok offered that without the recovery numbers it will be very difficult to determine exactly what needs to be accomplished but Steve Edmondson noted that he has written hundreds of orders for ladders when he worked at the FERC and cited Butte Creek as an example of an action taken without a recovery plan. Wayne suggested that in other relicensings this has been a post-licensing process and an action item would be for DWR management to consider this approach and determine how to proceed. Steve Edmondson noted that he was completing the resource action information form for the NOAA fish passage proposal and the EWG could expect it in a week or so.

IV. Study Deliverables and Implementation Updates

Study Methodology

The EWG discussed proposed modifications to study plan methodology for the following studies as noted.

SP-T2 and SP-T7

Gail Kuenster distributed a document denoting proposed changes to the study area for SP-T2 and SP-T7 (Attachment 6). She explained that some of the areas being removed from the study area are too steep and unstable to survey safely. Gail will provide the revised language to USFS for review as no representative was present. The EWG discussed the boundaries of the study and what is meant by the term 'adjacent'. Gail explained that when sensitive species are located, DWR is mapping their extent even if it is outside of the project boundary. One participant suggested inserting the word 'immediately' in front of adjacent for clarity.

Gail explained that the original study area for SP-T7 extended ½ mile outside the project boundary, encompassing a large amount of land. She indicated the issue was primarily with species distribution via irrigation canals and DWR was surveying those. The EWG agreed that additional outside information might be necessary to correctly evaluate the effectiveness of proposed resource actions related to noxious plant control. Gail will add language that explains how additional data for areas outside of the project boundary will be obtained if necessary.

SP-F10 and F3.2

DWR distributed a redline/strikeout version of SP-F10 and SP-F3.2 (Attachment 7 and 8) and DWR study lead Brad Cavallo explained that the changes bring the study plans in line with what is actually occurring in the field. He suggested the EWG review the changes and provide comments to him at bcavallo@water.ca.gov. He agreed to provide a one-page summary of the changes and justification to the EWG. Wayne Dyok noted that the study plan authors could either provide revised study plans in redline/strikeout or provide a separate page. The EWG requested a separate page with explanation for the change for future proposed modifications.

Draft / Interim Reports

SP-W5, Task 1, Phase 1 (Revised)

Jerry Boles, water quality study lead with DWR distributed a redlined/strikeouts version of the interim report for Task1, Phase 1 of SP-W5 (Attachment 9) and explained the proposed change to Phase 2 of the study. He explained that groundwater level monitoring is expensive and that Butte County confirmed their interest is in water quality and not water level. Butte County has approximately 80 sites monitoring groundwater levels and considers that adequate. Sharon Stohrer suggested that only the constituents showing surface water criteria exceedance should be monitored. Jerry explained that the proposed monitoring would include semi-annual measurements at approximately 20 sites for pH, temperature, mineral content, aluminum, and mercury. Results will be compared to surface water quality testing results to determine if groundwater is affected by surface water quality. Jerry confirmed that a lag time is expected. Andy Atkinson suggested and Jerry agreed to contact the Butte Basin Groundwater Association regarding their issues over conjunctive use of groundwater during drought conditions.

SP-F8

Philip Unger with the consulting team distributed copies of the Draft Report, SP-F8: Transfer of Energy and Nutrients by Anadromous Fish Migrations (Attachment 10) and provided the EWG with a presentation on the study (Attachment 11). He described the review of historical escapement information and the effort to estimate the potential escapement levels given the existing spawning habitat. He explained how they estimated nutrients potentially supplied by anadromous salmonids in the upstream tributaries and reviewed the various nutrient enhancement strategies available to enhance upstream nutrient availability. Chuck Hanson suggested that the assumed average weight for a spring run Chinook salmon should probably be 15-19 pounds rather than the assumed value of 30 pounds so the results are probably high. Chuck asked if a statistical sampling effort could help determine if a nutrient supplementation program is needed. Wayne Dyok suggested that a proposed resource action to determine upstream nutrient needs could be evaluated as one of the priority set of resource actions or PM&Es.

SP-F10, Task 2B

Dave Olson with the consulting team discussed the Interim Report on SP-F10, Task 2B: Steelhead Spawning Methods (Attachment 12). He explained that this task was to have been completed in November 2002 and was to supplement initial work done on steelhead surveys. He noted that it would have provided an opportunity to improve the survey but the study results indicate that multiple strategies would be the best and it turns out that is how the study proceeded. So the methods used were the ones best supported by the literature.

Updates

SP-W2

Jerry Boles provided an update on SP-W2 and explained that the new mercury analysis will support data already collected. He described the subgroup meeting of technical experts held to discuss how to proceed with phase 2. The goal is to characterize the extent of and level of

contamination present in project water fish. Samples of salmon, trout and sunfish have been added to the already collected species, bass and catfish. Upstream of Lake Oroville trout, bass, and pikeminnow will be sampled and sites in Oroville Reservoir will include one in each arm and in the main body of the lake. Bass or pikeminnow along with carp and sunfish will be sampled from Thermalito Afterbay and between the Afterbay outlet and Honcut Creek. Mike Meinz noted that since Coho salmon spend a year in the hatchery, your Coho salmon sampling results may tell you more about hatchery conditions than project effects.

Chuck Hanson asked if measurements were being taken to determine whether or not upstream tributaries are nutrient limited and if we know what the appropriate nutrient amounts would be for this type of drainage. Jerry responded that they were not currently looking at this question and Philip Unger added that UC Davis researchers confirmed most of the interest is in eutrophication and not determining minimum or appropriate nutrient levels for a given system.

V. Action Items – April 23, 2003 Environmental Work Group Meeting

A summary of the April 23, 2003 EWG meeting is posted on the relicensing web site. The Facilitator reviewed the status of action items from that meeting as follows:

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| Action Item #E85: | Form a small focused group of participants with technical expertise to develop a recommended strategy for Phase 2 of SP-W2. |
| Status: | Discussed at this meeting. See summary above. |
| Action Item #E86: | Consider revising the matrix and goals narrative to use common headers |
| Status: | On-going effort: discussed at this meeting. See summary above. |
| Action Item #E87: | Convene task forces to evaluate fisheries and terrestrial resource actions |
| Status: | Fisheries and Terrestrial Task Force meetings were reported on at this meeting. See summary above. |

Dave Olson reported on a request from Eric Theiss (not an action item) to quantify the amount of pool habitat associated with SP-F10 Task 1E. He reported that from the Fish Barrier Dam to Matthews Riffle there are 26.7 surface acres of pool; 33.4 acres of pool from Matthews Riffle to Thermalito Afterbay Outlet; and 101 acres of pool between Thermalito Afterbay Outlet and Honcut Creek. Dave agreed to add caveat that not all of the pool acreage is likely to be of suitable depth.

VI. Next Steps

The Facilitator described an action item from the Plenary Group that involves the development of participant rosters for each of the work groups and the Plenary Group that identify primary and secondary representatives, contact information and ultimate decision maker. She distributed a draft roster and asked the EWG participants to review it and provide revisions including the name of the ultimate decision maker for each participant group.

Wayne Dyok informed the EWG that DWR and NOAA Fisheries and USFWS met on May 14 to continue their discussions on the cumulative and ESA approach. He reported that the meeting was informational and they intend to continue meeting and would like DFG to be involved in the discussion. The Facilitator noted that Roger Masuda representing Butte County mentioned this meeting at the Plenary Group meeting and would like to be involved in any further discussions or meetings of the Cumulative/ESA Task Force in the event it is reconvened. Wayne noted the next meeting will be in early July and the County will be notified.

Rich DeHaven representing FWS asked to have 15 minutes on the next EWG meeting agenda to discuss Thermalito Afterbay Outlet water temperatures. The EWG agreed to put it on the June agenda.

The participants agreed that the June Environmental Work Group meeting would be:

Date: June 25, 2003
Time: 9:00 a.m. – 3:30 p.m. (Note earlier start time)
Location: Oroville Field Division

Action Items

The following action items identified by the Environmental Work Group includes a description of the action, the participant responsible for the action, and due date.

Action Item #E88: Provide more detailed information on the priority potential resource actions as identified during the EWG meeting.

Responsible: DWR/Consulting team

Due Date: June 25, 2003

Action Item #E89: E-mail copy of fish passage presentation to EWG participants.

Responsible: Eric Theiss, NOAA/Ted Alvarez, DWR

Due Date: May 31, 2003

Action Item #E90: Consider fish passage and potential watershed approach.

Responsible: DWR Management

Due Date: July 2003

Action Item #E91: E-mail one page summary of changes and justification for methodology changes to SP-F10 and SP-F3.2.

Responsible: DWR

Due Date: June 25, 2003

Action Item #E92: Contact butte Basin Groundwater Association to clarify their issues related to conjunctive use of groundwater during drought conditions.

Responsible: Jerry Boles, DWR

Due Date: July 2003

Action Item #E93: Notice further meeting on cumulative impacts and ESA approach to Cumulative/ESA Task Force members.

Responsible: DWR

Due Date: As appropriate